Camera Housing –Model E-500 (Olympus)

User Manual

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1. Introduction

10 BAR Underwater Housings are small, light and rugged enough to be used on every dive. Use of a clear polycarbonate allows for visual inspection of camera condition and the O-ring seal. 10 BAR Housings are designed for the ever -increasing variety of models of digital still and video cameras. Advanced computer aided design and CNC manufacturing technologies ensure precise dimensions. Each housing body is first injection molded, and then machined to configure to individual camera model. A range of lens ports and controls are fitted, to tailor the housing to your camera model.

2. Specifications E-500

Test Pressure	10 Bar (300 ft.) Housings are individually tested
Closure Design	Air Lock
Body Material	Polycarbonate
Overall Size	210 x 270 x 200 mm (LxWxH)
Total Weight	Approximately 2.46 Kg (Housing only)
Buoyancy (with flashlight)	Approximately neutral in salt water
Features	• Visible main O-ring for final pre-dive check • Double O-ring design on all controls • Bulkhead and hot shoe plug for External TTL strobe • Zoom Port bayonet Dia. 114mm 14mm ~ 45mm
Accessories	• Universal key • Silicone O-ring grease • Spare main O-ring • Carrying bag • Cleaning Kit
Optional accessories	• Dome Port bayonet Dia. 114mm • Macro Ports bayonet Dia. 114mm • FL-50 TTL Flashlight Housing • Flex Arm • Ball Join Arm • Synchronous Cord

3. Function Controls E-500

1. Exposure Compensation	6. OK	11. Play, Delete
2. On/Off, Mode Dial	7. WB, Metering Mode, AF, ISO	12. MENU, INFO
3. Bulkhead	8. Copy	13. Shutter
4. Aperture	9. AEL / AFL	14. Zoom
5. One-touch WB, Auto Focus Point	10. Pressure Release Plug	

4. Set up Instructions

4.1 Air Lock:

The body and lid are designed with the Air Lock system “no clip” closure arrangement. Testing has shown that this arrangement allow the water to exert an even pressure on the O-ring, increasing the reliability of the watertight seal.

4.2 Pressure release plug

To open the housing, the pressure release plug must be first unscrewed and then pulled out all the way (Fig 1). This provides a passage for the air to pass though and eliminate the pressure different between the inside of the housing and the ambient.

The plug consists of an internal double O-ring seal on the stainless steel slide shaft. These internal O-rings form the watertight seal. There is also a large outer O-ring under the knob. This O-ring serves to prevent contamination of the slide shaft, with dirt, salt etc., and is not required for watertight integrity. If this O-ring should become detached, it can simply be pushed back in place.

(Fig. 1) Open Housing Procedure

4.3 Opening levers:

After unscrewing and pulling out the pressure release plug, the lid can be opened. To overcome the friction of opening, use lever (Fig. 2) to push against the lid with a cam action. Be sure they are inserted all the way flat to the housing before turning to avoid damaging the protrusions on the lid. The body has four holes on each corner edges for opening. Gently lever off the lid with the supplied cams (Fig. 3) taking care not to twist the lid excessively. The lid should be opened keeping it approximately paralleled to the body at all times, turn first one corner a little, then the other a little, and repeat again until the lid is opened. Remember to unscrew and pull out the pressure release plug all the way first, otherwise the air pressure will resist attempts at opening. Lay the lid on a flat stable surface after opening.

(Fig. 2) Opening lever

(Fig. 3) Turn to open

4.4 Special note on responsibility for watertight integrity:

Each housing is individually inspected and hydrostatically tested in the factory. The design of the main piston O-ring seal is among the most reliable in the industry and the watertight integrity is excellent. This special O-ring design provides a perfect seal even if there is any movement between the body and lid due to change of ambient pressure. However please note that responsibility for ensuring the integrity of the watertight seal lies entirely with the user. 10 BAR accepts no liability for damage to, or loss of any equipment used with, or placed inside the housing. Users are highly recommended to carry out in-water test of the housings without installing of the camera for their first dive after change of new ports or alternation of any new configuration. The test can be carried out by lowering the housing with ballast to the working depth or dive down to the safe diving range.

The O-ring seal is the only barrier between the water outside and the air space within the camera. It is an effective barrier only if the seal is properly maintained. The O-ring seal should be inspected before every dive. The following information is provided for your guidance in using and maintaining the O-ring seal.

4.5 Maintaining the O-ring Seal:

If the main body to lid O-ring is not installed, install the O-ring before diving. This is the only user serviceable O-ring. Its care and maintenance is critical to the watertight integrity of the housing. The O-ring should be replaced at the service interval (see section on service). If the O-ring is contaminated, or not already installed, inspect grease and install the O-ring according to the following guidelines.

4.6 Inspection, cleaning and re-instillation of the O-ring:

Tools:

A soft cotton bud or sponge applicator, make sure these are free of all chemicals or contamination such as loose fibers, and the tube of silicone grease supplied with the housing are required. Note other types of silicone grease specifically for use with underwater camera equipment can usually also be used. It is advised to carry out the following procedure on a firm clean level surface, (e.g. at a table), to prevent skidding especially useful to have when diving from a boat.

When to maintain the O-ring seal:

Remove the O-ring periodically for inspection. It is not necessary to remove, clean and re-install the O-ring after every dive provided the O-ring did not become contaminated. As a rule of thumb set up the camera and housing before a day's diving. If the housing is required to be opened between dives for changing memory card or re-charging batteries, make sure the outside of the housing is thoroughly toweled dry before opening up. After removing the lid and servicing the camera, replace the lid straight away, rather than leaving it lying around. Before replacing the lid, make sure that no contamination such as dust, hair, salt, sand etc. has fallen onto the O-ring or O-ring recess, as a precaution we recommend to inspect the O-ring every time the lid is opened and to carry out the maintenance if necessary.

Procedure:

- Place the lid on a firm non-slip level surface.
- The O-ring can be extracted using an O-ring extractor tool (make sure the tool as no sharp edges). Alternatively use the flat s of the thumbs to gently stretch the O-ring on two faces (Fig. 4) thus making a small loop protruding a few mm. The loop can then be grasped between finger and thumb, to pull the O-ring over the lip.
- Clean the O-ring recess (the square groove where the O-ring sits) with a cotton bud. sponge applicator.
- Inspect the O-ring all the way round its surface for damage such as cuts tears or contamination. This should be done visually and also by feeling the surface texture between finger and thumb.

- **IF THE O-RING IS DAMAGED OR SUSPECTED OF BEING DAMAGED, DISCARD IT IMMEDIATELY.** A spare O -ring is supplied with your housing, or a replacement O-ring can be obtained from 10 BAR. If the O-ring is contaminated or suspected of being contaminated, clean it with a cotton cloth that is free of all chemicals or contamination. After cleaning inspect the O-ring again.

- Once the O-ring has been inspected and verified fit for use, apply a SMALL amount of silicone grease to the O-ring. The silicone grease must be evenly distributed round the O-ring

- Replace the O-ring into the groove; run a finger round the O-ring, to make sure it is snugly seated in the groove.

(Fig. 4) Stretch the O-ring

4.7 Mounting the flashlight in the housing:

Remove the lens cap and wrist strap. The pressure release plug should be pulled out before inserting the camera. Attach the plastic slide tray to the camera's tripod mounting fixture with a coin, screwdriver or the end of the universal tool supplied (Fig. 5). Take care not to excessively tighten the screw. Attach the zoom gear guide on the lens zoom bezel with the mounting Velcro (Fig. 6), pointing the guide right into the slot of the gear ring on housing bezel (Fig.7). Pull up the Main Dial control button. Slide the camera into the body along the guide rail and make sure the zoom gear guide coupled with the slot of the gear ring on the lens bezel (Fig. 8). Make sure the

camera body reach the limit and test the function of the on/of button on the body of the housing. Slide the hot shoe plug into the hot shoe (Fig. 9) Note: If you find that the buttons do not align properly with the controls, please check again that the camera is properly seated to the limit of the guide rail.

(Fig. 5)

(Fig. 6)

(Fig. 7)

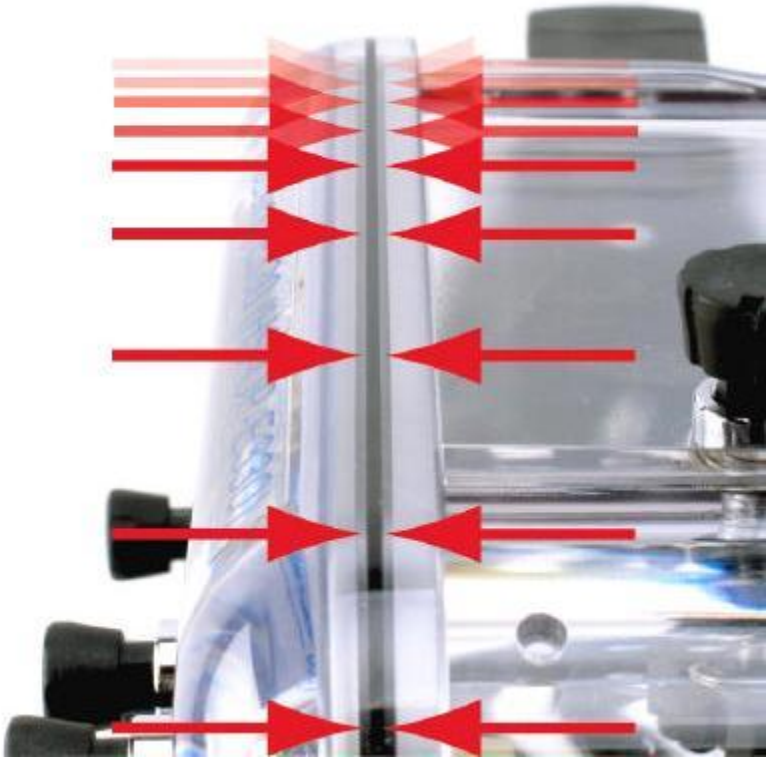
(Fig. 8)

(Fig. 9)

(Fig. 10)

Replace the lid (Fig. 10). Remember to ensure the pressure release plug is pulled all the way out while closing, otherwise the air cannot escape. Squeeze the lid closed all the way with the hissing of expelled air. Screw home the pressure release plug. There is no need to excessively tighten this plug. The seal is made by internal O-rings. The O-ring on the underside of the plug is just to keep out dirt.

After replacing the lid, make a final visual inspection of the main O-ring for contamination (Fig. 11).



(Fig. 11)

Note: If the O-ring is in good contact, a thin black line, about 0.5-1mm in width should be visible, where the O-ring is in contact with the lid. Follow this line all the way round the edge of the seal, as a final check that the seal is good.

The housing is now ready for the dive.

Important !!!

Before diving, make sure the pressure release plug is pushed back inside and then screwed home, do not over tighten this plug (finger tight only).

5. Use & Care of Housing:

5.1 Pre Dive Function Check.

Just before entering the water, make a habit of reviewing that you have carried out the proper steps to close the housing. and the pressure release plug screwed home. Make a visual check of the O-ring seal. It is also useful to switch on the camera, and check that controls e.g. on/off, zoom, shutter functions operate normally. In case of misalignment of the camera, simply open the case and correct the problem.

- Check housing is closed.
- Close pressure release plug
- Check battery is full
- Check sync cord is connected to the camera housing
- Shot the camera at Auto mode

If there is a large change of temperature and the housing is not opened for maintenance between dives, it is recommended to equalize the possible pressure difference between the inside of the housing and the ambient by
opening the pressure release plug and close it firmly subsequently.

Always avoid submerging the housing in hot water for a prolonged time or a cleansing tank where the water may be heated up by the sun.

5.2 General Operation.

The control levers and push buttons consist of internal double O-ring seals on a stainless steel shaft. This arrangement is very reliable, however as a precaution, when operating the controls, avoid excessively rapid movements, as this may distort the O-ring. Also please allow for the fact that the camera takes a few seconds to power on. If the camera dose not appear to respond to a control action, make sure that no other controls are pressing on the camera, i.e. locking out further actions. Wear the wrist strap; it is easy to inadvertently let go of the housing, especially if you are distracted.

5.3 Cleaning & Storage.

The body & lid of the housing are made of polycarbonate. Polycarbonate was selected for its outstanding strength stiffness, hardness and toughness. As well as its crystal clear transparency and high gloss surface. It has good resistance to weathering, although long-term exposure to sunlight should be avoided. Normal operating temperature range is 3°C to 36°C (Storage temperature: -10°C to 50°C)

It is good practice to rinse off your housing with fresh water after every dive. Avoid exposure to fine sand. After a series of 10 or more dives, e.g. after a dive holiday, it is recommended to immerse the housing for 2-3 hours in warm water to dissolve any salt deposits that may have built up. No chemical cleaners should be used. Mild detergents e.g. shampoo and soap based cleaners are permitted.

Important !!!

Some household chemicals may harm Polycarbonate; the housing should never be exposed to the following classes of chemicals: benzene, toluene, xylene, chlorinated hydrocarbons, methanol, any other solvents, strong acids and bases.

For long term storage please remove the main o-ring from body.

5.4 Transportation.

When transporting by air, please ensure the housing is not sealed, to allow the air pressure to equalize. Either remove the O -ring (recommended), or open the pressure release port (a spacer is provided to keep the pressure plug in the open position, please make sure there is no bending of the plug while open).

Please protect the housing during transportation. It is recommended to remove the sync cord, and wrap the housing in foam or bubble wrap.

5.5 Accidents.

The impact resistance of the housing is excellent. However after an accident the alignment of the housing may have been damaged. Therefore in the event of your housing suffering an impact force, e.g. being dropped, it is essential you do not use the housing for diving. Please return the housing immediately for service. Please put a note inside to indicate the nature of the accident, so that we can assess the severity.

6. Service

To ensure the continued performance of your housing, it should be serviced every year, or after every 200 dives. Please note the terms for servicing the housing posted at our website. A full service will include:

- **Inspection of all components for wears or damage (report if repair necessary)**
- **Cleaning of all sealing surfaces, and replacement of all O-ring seals.**
- **Hydrostatic pressure test to 10 Bar.**

Note: the replacement of damaged components (except replacement O-rings) may require additional cost.

7. Warranty

The warranty is valid within two years from the date of first purchase. The warranty applies only to the housing itself. **10 BAR does not accept any liability either implicit or otherwise for any equipment housed inside, or used together with the housing.** In the event of the housing flooding within the period of warranty, 10 BAR will repair or replace the housing. Please note that disassembly of the housing will invalidate warranty. Please fill in the information below, and return a copy to 10 Bar Underwater Housing at the address below, to validate the warranty.

(Copy to be retained by user)

Housing Type		**Date of Purchase**
Serial Number : (Labelled inside housing)		**Dealer :**
Owner's Name :		**E-mail :**
Owner's Address:		**Tel :** **Fax :**

Office & Showroom:
Unit C, 2/F., Wing Hin Factory Building, 31-33 Ng Fong St.,
San Po Kong, Hong Kong.
Tel: (852) 2573 3228 Fax: (852) 2811 9180.
Email: service@10bar.com Web site: http://www.10bar.com

Please keep this document for future reference

(Note: due to continuous improvement the latest model housing may differ slightly form those described in this document)

(Copy to be returned to 10 Bar Underwater Housings)

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Housing Type:		**Date of Purchase:**
Serial Number: (Labelled inside housing)		**Deale:**
Owner's Name:		**E-mail:**
Owner's Address:		**Tel:** **Fax:**

Please return the Warranty to the following address:

Office & Showroom:
Unit C, 2/F., Wing Hin Factory Building, 31-33 Ng Fong St.,
San Po Kong, Hong Kong.
Tel: (852) 2573 3228 Fax: (852) 2811 9180
Email: service@10bar.com Web site: http://www.10bar.com